Research Experience in Psychiatry Residency Program at Historical Black Colleges and Universities (HBCU) - Current Status

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Abstract

Despite recognition of the need to increase investigator diversity, several studies have shown a lack of minority representation among National Institutes of Health-funded investigators. Personnel from underrepresented minority groups such as African Americans and Hispanics only comprised 3.2% of funded principal investigators on research program grants. Increasing the pool of funded minority investigators will result in increased participation by minority investigators in the scientific reviewer process, which should further contribute to diversification of the NIH-funded research portfolio and enhance the research community's diversity.

Objective: To determine the current status of research experience in psychiatry residents at HBCU.

Method: We surveyed to determine residents' perceptions of the importance of incorporation of research education during their residency training. The authors administered an anonymous survey to fifteen (15) psychiatry residents at HBCU. The questionnaires of Agurie et al. 1996 and Buschbacher et al.1995 were combined, modified, and adapted to assess need for a structured research training program. We choose this survey because of its comprehensiveness and utility- Alguire et al. surveyed program directors and residents of all the U.S. Accreditation Council of Graduate Medical Education residency programs. The survey consisted of 30 questions categorized into demographic, research curriculum, and overall general questions about resident's opinion regarding exposure to basic concepts of research (e.g., research design, methodology, data collection, data analysis, and data interpretation). Because this survey was performed primarily for program development and improvement to guide possible implementation of a research program, this exercise was deemed exempt from Institutional Review Board (IRB) approval requirement as determined upon consultation with our institute IRB.

Results: We received 93% (15/16) response rate from the residents (PGY1 to PGY-4). Residents generally agreed that research is essential in their clinical practice (69%). Seventy-five percent (75%) reported having no protected research time. Ninety percent (90%) of residents indicated their interest in research if opportunity provided before completion of residency. The survey results suggested that there is a need for developing a well-structured, robust research program for residents regardless of their career stage. Authors aimed to view the transition from graduate resident to faculty researcher by building and expanding research experience during residency training.

Conclusions:

The current status of the research experience during psychiatry residency at HBCU is encouraging, but there is heterogeneity in the scholarly activities among residents that qualify for mandatory research experience. The career opportunities available to our residents would significantly increase if they receive structured formal research training to become an independent research career.

Introduction:

There is a critical lack of ethnic diversity among physician-scientists engaged in clinical mental health research. Ongoing research consistently shows that culture and ethnicity seem to influence diagnoses and pharmacotherapy of mental disorders and to contribute to ethnic disparities in clinical outcomes (Heggeness et al. 2016). A serious knowledge gap can be reduced substantially by increasing the diversity of researchers.

Racially and ethnically diverse investigators bring new perspectives and experiences that enhance our understanding of underlying racial and ethnic variation in health care settings. The lack of diversity among biomedical research professionals is not merely an issue of demographic equity or intellectual acuity; it also undermines the realization of our national research goal (Heggeness et al. 2016).

Despite recognition of the need to increase the pool of minority investigators, several studies have shown a lack of minority representation among NIH-funded investigators (Goldstein et al. 2014; Minor et al. 2008; Timothy et al. 2009).

In fiscal year 2002, NIH funding awards went to approximately 13.8% of minority principal investigators (Shavers et al. 2005). Additionally, investigators from underrepresented minority groups (e.g., African Americans, Asian, Hispanics, Native Americans) only comprised 3.2% of funded principal investigators on research program grants. Additionally, support from the federal government to support institutions that could produce future minority physician-scientists has been limited. From 1993–2002, total federal funding increased by 40% for all academic institutions but only by 24% for HBCUs (Minor et al. 2008).

Dickler et al. (2007) gathered data from the NIH's Consolidated Grant Applicant File from 1964–2004 and analyzed trends in the annual number of first-time applicants for NIH R01 grants. This study found the challenges for ethnic minorities are significant. Even when ethnic minorities, particularly African Americans, have been successful in handling the initial hurdles of research career development, they are likely to face additional obstacles in maintaining and advancing their academic career in research (Dickler et al. 2007 & Goldstein et al.2014).

Apart from well-established MD/Ph.D. programs, the research training experience offered during residency in the US is typically fragmented and unmethodical. Furthermore, faculty availability and funding for mentoring are significant limiting factors in our efforts to enhance residents' research skills (Back et al. 2011). This has become a critical issue at academic institutions. Facing unprecedented financial pressure, faculty must often commit significant time in revenue-generating activities (Balon et al. 2001). Success for any research development program requires dedicated funding for mentors, faculty, and statisticians. Having a clear expectation for the time and effort of mentors is critical in research training emphasized in several studies (Balon et al. 2001 & Back et al. 2011).

A recent *Journal of the National Medical Association* (NMA) study highlighted several barriers that hindered competitiveness of minority investigators applying for NIH funding: (1) inadequate research infrastructure, training, and development; (2) obstacles to development as independent researchers; (3) insufficient mentoring; (4) institutional bias in NIH policies; (5) lack of institutional support; and (6) lack of support

for research topics and methods relevant to research affecting minority communities (Shavers 2005). Data from this study suggests there is a need to use a multilevel approach to increase minority representation among NIH-funded investigators. Creating opportunities for mentoring and collaboration was ranked as most important and feasible action in this study. Research shows increased investment in clinical research at HBCUs could benefit communities throughout the country (Timothy et al. 2009).

Diversity in work force fosters scientific innovation, improves research quality, enhances public trust, and increases the likelihood that health-disparity populations will participate in and benefit from health research (Gurin 2016; Leonard 2006; NIH 2015) Finally, more women and underrepresented minorities (URM) need to be integrated into residency research training programs (Guelich et al. 2002; Verma & Malik et al.2007). Sakamoto, Dipple, et al. (2009) revealed a vital factor in their success as female physician-scientists is supportive mentorship.

Preliminary Data: Psychiatry Resident Research Survey, Needs Assessment: We surveyed to examine how psychiatry residency program incorporate research training into residency curricula and to determine residents' perceptions of the importance of incorporation of research education during their residency training. The authors administered an anonymous survey to fifteen (15) psychiatry residents at HUH. All psychiatry residents were invited to complete the survey and 15 out of 16 (93%) completed the survey. Three residents from PGY 1 and four residents from PGY II to IV completed the survey. The questionnaires of Agurie et al. 1996 and Buschbacher et al.1995 were combined, modified, and adapted for a research training program. We choose this survey because Alguire et al. surveyed program directors and residents of all the U.S. Accreditation Council of Graduate Medical Education residency programs. They wanted to determine how well prepared these programs were to meet the ACGME accreditation guidelines for resident scholarly activity. Buschbacher et al. surveyed all residents and program directors to assess what the programs perceived they are offering for research training compared to what residents themselves felt provided to them. The survey consisted of 30 questions categorized into demographic, opinion of resident about research, research curriculum, and overall general questions about exposure to basic concepts of research (e.g., research design, methodology, data collection, data analysis). Because this survey was performed primarily for program development and improvement to guide possible implementation of a research program, this exercise was deemed exempt from Institutional Review Board (IRB) approval requirement as determined upon consultation with the Howard IRB

Data Summary and Analysis: We had a 93% (15/16) response rate from the residents. Residents generally agreed that research is essential in their clinical practice (69%). Seventy-five percent (75%) reported having no protected research time. Ninety percent (90%) of residents indicated their interest in research if provided opportunity before completion of residency. The survey results suggested that establishing a well-structured, robust research program appealed to participants regardless of their career stage. It was encouraging to see interest in academic research among current residents.

Table.1: Subset of Resident Research Training Survey Results

Questionnaire	Yes%	No%
In your opinion, is research important in informing your clinical practice?	69%	31%
Do you receive adequate training in research design?	31%	69%
Do you receive adequate training in research methodology?	38%	63%
Do you receive adequate training in publishing research articles and case reports?	25%	75%
Do you receive adequate training in grant applications?	16%	96%
Is research time protected?	75%	25%
For the current academic year or previously have you completed and publish research articles or case reports?	25%	75%
Are you interested in joining a structured research training if offered by your training program?	90%	10%

Current Status of Psychiatry Research Program at HBCU

Howard's Dept. of Psychiatry provides comprehensive, in-depth training at different training sites in a supportive and collaborative environment. We train sixteen (16) psychiatrists per year. After completion of training, our residents have gone on to excel in several areas of psychiatry. For instance, in the last five years, thirty-five (35%) of our residents have completed fellowship training in addiction psychiatry, consultation liaison, and child psychiatry. The career opportunities available to our residents would significantly increase if we could provide formal research training to ensure that our graduates have the necessary skills to launch an independent research career.

At present, research activity is not a mandatory component of the psychiatry residency training program. Previously, our graduate residents (2010–2015) received informal research training on multiple federally funded research projects, on which residents actively participated in collaborative NIDA-funded clinical trial STRIDE- A collaboration with the Yale School of Medicine, George Mason University, and Dartmouth-Howard

collaboration projects. Residents were trained by principal investigators (PIs) on clinical psychiatric assessments, psychometric scales, detox, and randomization processes. The STRIDE study collaboration focused on mental health, opioid addiction, and infectious disease/HIV among Africans Americans involved in the criminal justice system (CJS). Although project STRIDE provided excellent learning opportunities for the residents, their involvement in writing research abstracts and publications was minimal.

Nevertheless, majority of residents have had a positive attitude toward research, they have felt it was less essential to participate in research due to a lack of structured research programs and research training and due to having no assigned bio-statistician to assist them with data analysis and dtata interpretation. Thus, most of our graduate residents focused only on clinical component of the STRIDE project. Additionally, few residents were able to collaborative on existing research projects in the Dept, while few were not due to clinical rotations priorities; therefore, there is heterogeneity found in the scholarly activities among residents. We identified a pressing need to develop and implement a formal interdisciplinary, multi-institutional research education program for psychiatry residents to address these crucial gaps. We determined that the best approach for achieving this goal would be by establishing a productive research program that promotes mentorship among interdisciplinary collaborative model.

To our knowledge, none of our residents in the last five years has pursued a research career. Implementation of research program will motivate and prepare psychiatry residents to consider career paths as physician-scientists by facilitating their development of professional research skills and expert mentorship guidance.

We aim to address the manpower problem in research by targeting minority, psychiatry residents in an inner city HBCU. This idea builds on a previously funded collaboration with the NIMH's Division of Intramural Research Programs that sought to increase faculty involvement in research (Carpenter Song et al. 2009) It also expands our successful collaboration with the Dartmouth College Psychiatric Research Center (PRC), which increased faculty involvement in research projects promoting recovery of severely mentally ill patients. Part of this collaboration involved remote clinical teaching through a tele-psychiatry linkage.

Participation and Collaboration with GHUCCTS Training Program: The Georgetown-Howard Universities Center for Clinical and Translational Science (GHUCCTS) was founded in 2010 to advance the health of communities across the nation by conducting research-based practices on human health and well-being. GHUCCTS represents a unique consortium of academic and medical institutions across the greater Washington DC area. Through multiple partnerships and collaborations among organizations, GHUCCTS is committed to transforming clinical and translational research by facilitating the adoption of new scientific advances into improvements in health care, particularly to underserved groups in our communities including people of color with diverse racial, ethnic, and cultural backgrounds.

GHUCCTS- has a crucial role in research training in the HU Department of Psychiatry. It supports expanding research training experiences and individual mentoring to minority psychiatry residents.

Residents interested in pursuing advanced research are encouraged, although not mandatory, to attend an intensive workshop in biostatistics, epidemiology, and clinical

research, and a grant writing seminar series. Residents are also encouraged to utilize GHUCCTS' Career Development and Mentoring Program (CDP).

Although existing resources are available but there is a need to develop new curricula to facilitate development of psychiatry residents as future resources- which can be accomplished by creating a research track to help us identify trainees interested in research. We emphasis strong mentorship for participating residents throughout the residency training program and provide opportunities for continued research career development post-residency training. Trainees are expected to present their findings at national meetings and publish their results in peer-reviewed journals. We anticipate that resident will be able to use their preliminary data to apply for postdoctoral and career development training grants. Training related to these core competencies will be embedded in the training curriculum to ensure that trainees acquire the required skills to succeed in academic research.

Authors propose a research program which provides an ongoing linkage to health disparities and cultural issues while grounding participants in primary research methodologies. And to provide opportunities that include access to comprehensive learning tools such as biomarkers, innovative pharmacotherapy, imaging technology, reliable and valid psychometric scales, and genetic information regarding mental disorders.

Discussion:

There are 105 HBCUs in the U.S., including public and private institutions, overall HBCU's lack significantly behind mainstream institutions in terms of research funding. Various internal and external factors, including budgetary constraints, cultural issues and lack of research models have been identified as barriers (Kundu & Dutta, 2000). However a single most important factor is early recruitment of trainees and faculty into research pathways (Hurtado 2009).

Psychiatric residency programs vary widely in terms of research education and exposure. To our knowledge, this is the first survey conducted on residents to explore the current status of psychiatry research experience at HBCU. This survey results support the notion that successful implementation of educational intervention should be considered in academic settings to enhance research skills of psychiatry residents. Research indicates while primary curricula for psychiatry research exist, but there is lack of detailed, standardized developmental curricula and meaningful evaluations which impedes physicians interested in adopting these research curricula. The research curricula at HBCU's should be specifically geared towards identifying critical gaps and preparing trainees towards future research participation. In particular, trainees should be allowed protected time to develop research literacy and get involve in ongoing research projects. A previous report by IOM called for research literacy requirements and research training curricula tailored to psychiatry residency programs of various sizes (Abrams MT, Patchan K, Boat TF, 2003)

This study has some limitations such as this survey was solely administered to the fifteen (15) psychiatry residents at HBCU, therefore

survey results only reflect the research training system of this institute. Therefore, results cannot be generalizable to other institutes.

Further, the information collected in the survey reflect perspectives and knowledge of the currently enrolled psychiatry residents not of the faculty/ program director.

Seventy-five percent (75%) reported having no protected research time. That could be the reason there is heterogeneity in the type of scholarly activities. Some resident collaborates on faculty research projects and successfully present in the scientific conferences locally and internationally. However; several resident need to get advance experience in data interpretation and data analysis. Further they lack expertise to independently initiate and complete research projects. Based on current survey results ninety percent (90%) of residents indicated their interest in research if provided opportunity before completion of residency. There is a need of implementation of a robust research program to fulfill unmet needs at HBCU.

Further, we anticipate working with an existing Georgetown–Howard Translational Research collaboration funded through the Clinical and Translational Science Award (CTSA) program at HBCU. This will expand the scope of these successful critical collaborations that promote faculty and institutional development to foster core research competencies among our resident trainees.

In summary, Authors propose implementation of the research program will significantly assist improving and enhancing research skills among minority psychiatry residents. We anticipate positive outcomes in terms of improving the well-being and clinical outcomes of our patients. The residents participating in research projects will actively demonstrate the links between discovery and societal benefit by providing specific explanations regarding the potential application of research and education results. We anticipate establishing a productive working relationship with academic scientists, on both technological and scientific projects to integrate research into broader programs and activities of national interest. Implementation of the research program will not only help to create future physician scientists, but it would also benefit society in a broader context.

Conclusions:

The current status of the research experience during psychiatry residency at HBCU is encouraging, but there is heterogeneity in the scholarly activities among residents that qualify for mandatory research experience. The career opportunities available to our residents would remarkably increase if we utilize existing resources and provide formal advance research training to ensure that our graduates have the necessary skills to launch an independent research career.

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